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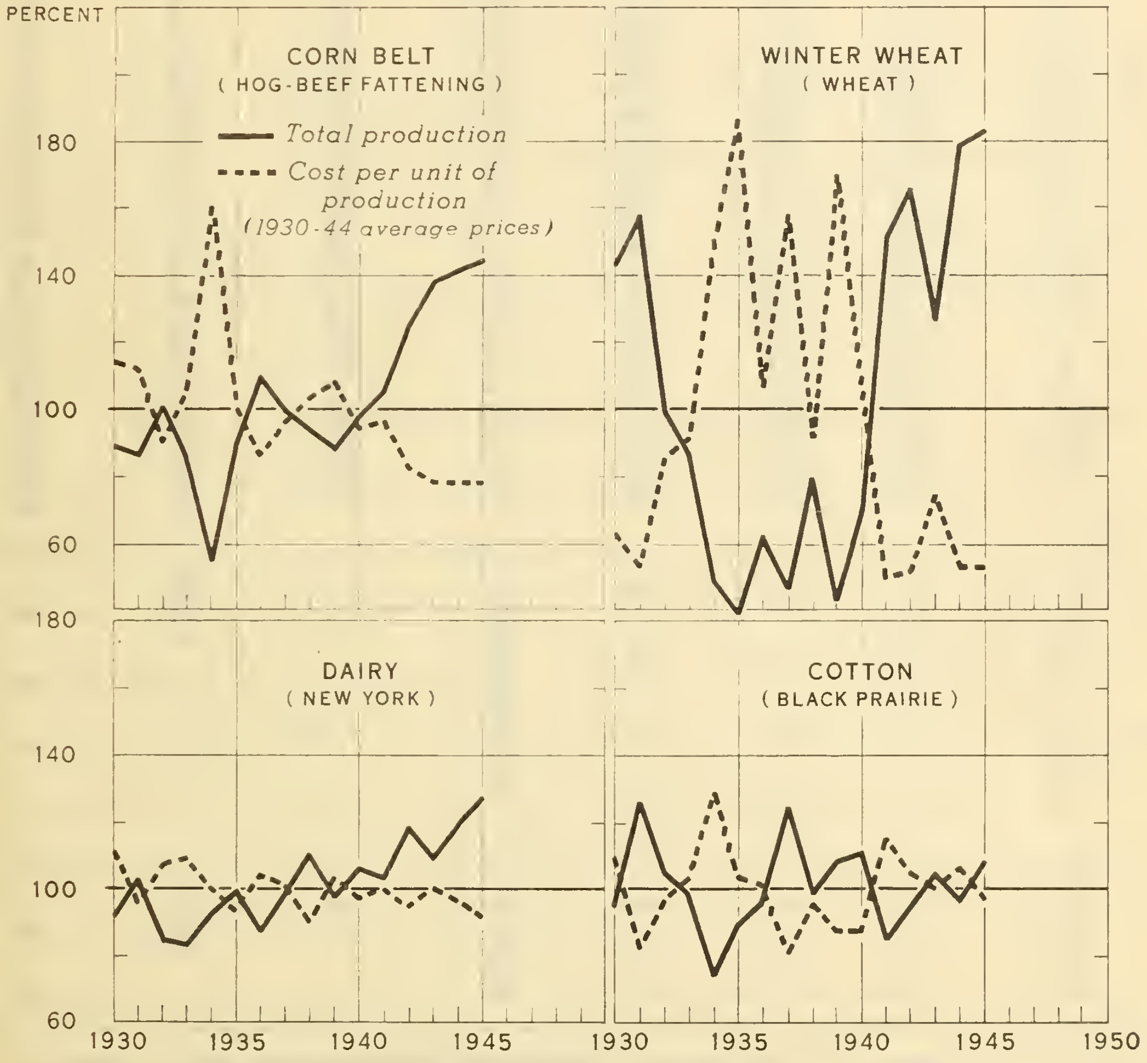
THE *Farm Cost* SITUATION

BUREAU OF AGRICULTURAL ECONOMICS
UNITED STATES DEPARTMENT OF AGRICULTURE

FCS - 1 BAE SEPTEMBER 1946

TOTAL PRODUCTION AND COST PER UNIT OF PRODUCTION, FAMILY OPERATED FARMS, BY TYPE, 1930-45
INDEX NUMBERS (1930-44 = 100)



U. S. DEPARTMENT OF AGRICULTURE NEG. 46109 BUREAU OF AGRICULTURAL ECONOMICS

Real gains have been made in productive efficiency during the past decade. Farm operators have increased production 10 to 50 percent and reduced unit costs by almost the same amount. These gains are the result of a number of factors that have not been shared uniformly by families on all types of farms. Increased production at lower unit costs is essential to improvement in the material standard of farm living.

Goods and services used in production: Prices paid by farmers and farm wage rates, United States

(Index numbers 1935-39=100)

Year	All commodities 1/	Farm machinery	Building material other than house	Equipment and supplies 2/	Feed	Fertilizer	Seed	Wage rates
1910	77	66	68	91	86	99	—	84
1911	81	66	70	90	99	99	—	84
1912	77	66	70	90	84	100	66	87
1913	80	66	68	90	99	102	63	89
1914	78	66	63	89	94	100	64	87
1915	82	68	69	95	93	112	77	89
1916	98	70	79	116	120	120	92	97
1917	119	80	93	141	170	137	96	122
1918	137	102	109	163	179	170	123	153
1919	151	105	128	162	195	182	181	178
1920	137	109	139	170	127	186	98	209
1921	111	105	105	137	90	156	86	134
1922	109	93	107	126	114	129	84	130
1923	111	97	109	123	124	126	92	146
1924	112	101	109	120	131	120	97	149
1925	116	101	111	126	131	129	111	152
1926	115	101	109	130	127	126	138	154
1927	113	101	108	127	128	121	127	154
1928	117	101	107	124	137	131	115	154
1929	116	100	107	123	134	130	119	155
1930	111	100	105	118	122	126	112	144
1931	97	99	94	104	86	115	98	112
1932	86	93	85	96	64	99	66	83
1933	85	91	87	93	71	96	61	73
1934	97	95	99	98	98	104	90	82
1935	100	96	98	97	106	102	99	89
1936	98	98	99	99	105	96	92	96
1937	107	101	105	103	121	102	124	109
1938	98	104	100	103	85	100	102	108
1939	96	101	100	99	85	100	84	106
1940	98	100	101	99	94	97	84	109
1941	103	103	109	104	101	100	80	133
1942	117	108	120	114	125	111	123	173
1943	128	111	128	121	150	120	156	228
1944	136	114	138	126	165	121	175	272
1945	137	116	141	128	163	121	181	302
Jan.	137				164		—	291
Feb.	137				165		179	
Mar.	138	115	140	128	166	121	183	
Apr.	138				165		183	295
May	137				163		183	
June	137	114	141	127	162			
July	137				162			303
Aug.	137				162			
Sept.	137	114	141	128	162	121	181	
Oct.	138				163			297
Nov.	138				164			
Dec.	138	115	143	127	164			
1946								
Jan.	138				165			311
Feb.	139				167		186	
Mar.	139	116	144	128	168	122	191	
Apr.	140				169		191	312
May	146				182		192	
June	150	119	150	129	191			
July	159				227			326

1/ Excluding wages.

2/ Based on prices paid by farmers for 16 items including binder twine, lead arsenate milk pails, pitchforks, gasoline for autos and trucks, motor oil, and tires, and other similar items used on farms for production.

Note:- For a list of items included in this table see "Agricultural Prices" Bureau of Agricultural Economics, April 29, 1946.

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FARM COST SITUATION

Approved by the Outlook and Situation Board, September 20, 1946

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General Situation

American farmers entered the post-war era on a substantially higher level of costs than obtained 5 to 7 years ago. War-born scarcities of manpower and material sent farm wage rates and feed prices soaring, pushed up prices of building materials, equipment and supplies, and consequently forced total cash production expenses upward at a rapid clip.

Farmers' out-of-pocket operating expenses mounted from something less than 6.2 billions in 1940 to nearly 11.3 billions in 1945. At the same time gross farm production increased 15 percent, leaving the outlay per unit of product nearly 60 percent above the 1940 level. Prices of production goods, particularly feed, and labor, rose sharply during the first three-quarters of 1946. Further increases are in prospect for some expense items during the balance of 1946 and at least the first part of 1947. These increases will raise still higher the overall level of farm production costs. But, farm production expenses are incurred largely to produce commodities for sale, and prices for farm products seem likely to remain at relatively high levels through 1947.

Farmers will pay higher wages and also higher prices for feeds, machinery, equipment, building materials, fertilizers, and supplies at least through early 1947 than in the year 1946. Both the availability and efficiency of farm laborers will probably be greater than during the past 3 or 4 years. Industrial activity will continue to exert an upward pressure on farm wage rates, as industrial employers will compete with farmers for workers.

Supplies of farm machinery attachments, and repair parts for next year may show little if any increase over last year as material shortages are expected to adversely influence the volume of production. Production in 1945-46 was about 5 percent below the relatively favorable output of 1944-45. Farm motortrucks, automobiles and tires are expected to be more plentiful in 1947 than in 1946. Total fertilizer supplies for the year ending June 30, 1947 are expected to be about the same as for the previous year. Supplies of building materials, however, will continue scarce. The extraordinary demands for building materials of all sorts have kept merchants from establishing inventories comparable to prewar. This is particularly true of lumber.

The 1946-47 outlook is favorable to continued heavy use of fertilizer. Increased efficiency in the manufacture and distribution of fertilizer will be favorable to still higher levels of fertilizer use in the future. Increased use in areas formerly using relatively little fertilizer can be expected.

Farm land values and rentals during the coming year are expected to average higher than for any year of record except for 1920, the peak of the World War I boom. Land values have been increasing at an average rate of one percent per month since 1941. Should farm product prices and incomes during the next year continue at or near present levels, land values and rentals are likely to continue to rise in spite of uncertainties as to longer-run price and income levels. If future developments continue to follow the post-World War I pattern, the danger of capitalizing boom time farm incomes into land values becomes serious. Farms bought largely on credit at inflated prices are likely to result in unbearable fixed costs in more normal times. High land prices represent relatively long-time high fixed investment and costs to the farmer who buys. In the same way high land rentals represent high fixed costs to the tenant, but land rentals are current rates that can be adjusted more readily to prevailing price-cost relationships.

Large surpluses of loanable funds and active competition among lenders have lowered the general level of interest rates during the past two decades. Also, most farmers are now in a relatively good financial position and can obtain loans in conservative amounts from the regular low-rate lenders. Farmers' purchases of machinery, motor vehicles, equipment, and materials will be up next year over the past few years and credit may be important in financing these purchases. While interest charges for such items are small compared to most other production costs, and cover a much shorter period than real estate mortgages, in the event of a decline in income these "fixed" costs might prove burdensome.

Generally good pasture and range conditions during the past summer have contributed materially to livestock production and to alleviating some of the stress on our feed supply. In spite of good pastures, a record corn crop, and a near record crop of oats, feed-grain supplies for the 1946-47 feed year will not be increased proportionately because carry-over of feeds at the end of the 1945-46 season was small. Wheat will not be freely available for livestock feed. Industrial demands for grains, and net exports of grains and feeds will be larger than usual. However, against this somewhat smaller total feed supply is about a 3 percent smaller number of grain-consuming livestock than were fed in the 1945-46 season. There are prospects for a 17 percent smaller pig crop this fall compared with a year ago. Numbers of chickens, horses, and probably milk cows and other cattle will also be down on January 1, 1947 compared with a year earlier.

The level of farm costs and their effect on farm incomes need to be considered in the particular setting in which typical groups of farmers operate. Few farmers produce a single commodity, rather they operate a combination of enterprises thus producing and selling several products. Some farmers raise nearly all of the feed grains and roughages necessary to feed their livestock, while others purchase from their neighbors or in the market place. High grain and roughage prices mean high gross returns to the farmer who sells, but high cash costs to the farmer who must buy. Feed costs may be higher than previously but if livestock prices are also relatively higher the income from livestock production may be favorable.

Many farmers hire little or no labor so to them higher farm wage rates do not increase cash outlays materially. About three-fourths of the total labor requirements on our American farms are met by the farm operator and members of his family. Some of this labor is effectively utilized and some of it is not, but it supplies most of the farm labor, as well as a reserve for the peak labor seasons inherent in our agricultural economy. Operator and other family labor force is a very important element in the total farm cost structure, but it is paid out of returns above other expenditures. In times of low prices and stress it gets a low return. In that way it absorbs much of the shock of hard times. But, in favorable years the return above other expenditures is much more satisfactory. Thus family and operator labor and interest on the operator's equity in the farm constitute returns to the family for their labor and for their investment rather than cash outlays--that is, income that they can use for family living or for savings.

In general terms then farmers use family labor and home raised feed in combination with other resources to produce a product for the market. Operator and unpaid family labor and home-raised feeds are non-cash costs of production, and make up well over half of total farm costs. During recent years the market rates for feed and labor have risen at a rapid rate. In July of this year feed was 261 percent and wages 302 percent of their respective rates in 1940 compared with 162 for the average of all goods and services used in production for the same period.

Then too, a very large part of farm production costs are "fixed costs" in the sense that when production is reduced, operator and family labor, land, and machinery (considered among fixed cost items) are less effectively utilized but their costs continue. A smaller volume of output has to bear the same total overhead thus raising the cost per unit of product. The net return per unit is thus smaller and the operator's earnings are reduced. Individual farmers cannot reduce output without increasing their real costs per unit.

Farmers, therefore, do not consider only the current general price or cost level. They operate a combination of enterprises, and must consider price-cost relationships in each. They can adjust some enterprises to current situations; others to only long-time situations. The farm is a home, an investment, and a place of labor. It offers many alternatives. Depending upon price-cost relationships farmers may profitably use more land, fertilizer, feed, seed, labor and other production factors or they may use less of some and more of others.

Farm Labor

Farmers have paid much higher wage bills in the past year than they did before the war. Cash wage payments and perquisites to hired workers were 2.2 billion dollars in 1945--nearly 2.5 times the average wage bill in 1935-39--and will be more in 1946. The 1945 wage bill was the largest on record. Farm wage rates in 1945 were three times the 1935-39 level, but employment of hired workers was 17 percent less than prewar.

Wage rates in 1946 are continuing their upward trend, while employment of hired workers is slightly above that of last year. The 1946 wage bill will probably exceed the record bill of 1945, by 5 to 10 percent.

Production per worker (for all farm workers) is almost 40 percent above the prewar level. This increase in labor productivity has tended to hold down unit labor costs. The ratio of index of farm wage rates to production per worker in 1945 was 220 percent of the 1935-39 average. The index of farm wage rates was 302 percent of the 1935-39 average. (See table 1.)

While wage rates and total wage payments have increased sharply during the war years, gross farm income and prices received have also increased. Gross farm income in 1945 was 236 percent of the 1935-39 average and prices received by farmers for their products were about 190 percent of the prewar average. Costs of many important production factors other than hired labor rose less rapidly than did prices received.

Several major factors have contributed to greater productivity of farm labor in recent years. Increased mechanization of farm operations and higher crop yields, due partly to favorable weather, are among the factors that have resulted in smaller labor requirements per unit of production. Farm workers, particularly seasonal ones, have been utilized more fully during the past few years.

Although farm wage rates are now more than three times their prewar level, farmers still are experiencing difficulty in competing with industry for workers. Industrial wage rates also have risen from prewar levels. In 1945, hourly earnings of factory workers were about 67 percent higher than in 1935-39. Farm wages showed a much greater percentage increase from the prewar period, but they started from a much lower level. Farm wage rates per month without board for July, for example, averaged nearly $35.00 in 1935-39 and by 1946 had increased to $106. When farmers hired their help by the day without board, they paid an average of $1.50

Table 1.- Farm wage rates and related data, United States, 1935-39 average and 1940-45 inclusive

Index numbers (1935-39 = 100)

Period or year	Farm employment			Gross farm production 2/		Farm wage rates	Ratio farm wage rates to production per worker
	Total 1/	Family 1/	Hired	Total	Per worker 3/		
1935-39 average	100	100	100	100	100	100	100
1940	97	96	100	107	110	109	99
1941	95	94	99	111	117	133	114
1942	95	94	99	122	128	173	135
1943	94	94	94	119	127	228	180
1944	92	93	87	124	135	272	201
1945	90	92	83	123	137	302	220

1/ Includes farm operators and members of their families working without wages.

2/ Includes value of farm-produced power of horses and mules.

3/ Based on total farm employment and total gross production.

in 1935-39 and $4.84 in 1946 respectively. Hourly earnings of factory workers, on the other hand, averaged $0.61 in 1935-39 and $1.02 in 1945.

Farm wage rates will probably average somewhat higher at least through early 1947 than in 1946. Continued high levels of employment, general business activity and cash farm income will exert an upward pressure on farm wage rates, as industrial employers and farmers compete for workers. This competition and supplies of both regular and seasonal workers will differ from area to area.

The total wage bill in agriculture probably will be higher in the coming year. But there should be an improvement in the skill and experience of workers and a further increase in farm worker efficiency.

Farm Power and Machinery

Farmers spent about 4.3 billion dollars for the operation and maintenance of power and machinery in 1945. This amount included the total cost of using power machines, other farm machinery and equipment and also the cost of keeping farm horses and mules. 1/ Power and machinery costs for 1945 were 73 percent above the 1935-39 average, but gross farm income was 136 percent above this average. The percent farm power and machinery costs are of gross farm income in 1945 was 16 compared with 22 in the 1935-39 period. (See table 2.)

Supplies of farm machinery, attachments, and repair parts for the year ended July 1, 1947 may show little if any increase over the production of the year ended July 1, 1946 as continued material shortages are expected to adversely influence the volume of production. Production this past year (1945-46) was about 5 percent below the relatively favorable output of 1944-45, but would have been larger except for labor-management disputes in major farm machinery plants and material shortages resulting from work stoppage in allied industries. Production in the early months of last season was about the same as for the same period a year earlier, but production for the 6 months ended June 30, 1946 was materially lower than for the same period in 1945.

Further improvement in the farm motor transport situation is expected in 1947. Production of motortrucks by July 1, 1946 had reached prewar levels and is expected to be higher in 1947. Automobile production in 1947 is expected to be considerably above the 1946 production. For the last 6 months of 1946, production of automobiles should more than double the 642,000 units produced in the first half of the year.

Supplies of tires of all types are expected to be ample in 1947. The 1946 production of tires for farm implements and for most farm motortrucks is about adequate to meet current needs. Production of automobile tires in 1946 is of record proportions and should provide about 2 new tires for every automobile registered in 1946.

Prices of most items of new machinery are now higher than in 1945 and further price increases are in prospect. This is also true for important supply items and services essential for using the machines, as well as horse feed and labor costs. Thus, compared with 1945 the cost of using farm power, machinery and equipment are likely to be considerably higher in 1946 and still higher in 1947.

The most important item of power and machinery costs for the Nation as a whole is the keeping of horses and mules, which amounted to more than 35 percent of the total farm power and machinery costs in 1945. Costs of keeping horses and mules in 1945 were 42 percent above the prewar average, largely because of the greatly increased feed prices and farm wage rates, and notwithstanding a 22 percent decline in horse and mule numbers. Per-head costs in 1945 were more than 80 percent above the prewar average and were almost double the 1940-41 average. (See table 3.) Colt crops have been small in recent years, and further reductions in numbers of horses and mules are in prospect.

1/ This estimate is based on prevailing farm values for horse and mule feed and other items supplied by the farm including wages for labor used in the care of work animals, current prices for items purchased, and current charges for services hired.

Table 2.- Estimated total cost of using farm machinery and of keeping horses and mules, United States, 1935-39 average and 1940-45

Index numbers (1935-39 = 100)

Calendar year or period	Horses and mules all ages		Tractors		Automobiles and motortrucks		All machinery and equipment other than tractors and motor vehicles		All farm power machinery and equipment			Gross farm income	Ratio of total cost of farm power and machinery to gross farm income
										Cost of use			
	Number on farms	Cost of maintenance 1/	Number on farms	Cost of use 2/	Number on farms	Cost of use 2/	Quantity on farms 3/	Cost of use 2/	Volume on farms 3/	Total	Percent of gross farm income		
1935-39	100	100	100	100	100	100	100	100	100	100	22	100	100
1940	92	82	124	126	107	111	119	115	105	102	21	105	97
1941	90	83	134	144	110	124	119	126	106	110	19	132	84
1942	87	100	148	165	116	138	129	147	111	128	16	177	72
1943	85	117	154	179	111	145	143	171	114	144	15	219	66
1944	81	141	157	198	106	157	145	191	112	163	16	229	71
1945 4/	78	142	167	216	106	166	160	212	115	173	16	236	73

1/ Based on prevailing prices, rates and value for feed, chore labor, depreciation, veterinary and horseshoeing expense, and including charges for stabling, taxes and insurance, etc.

2/ Operation and maintenance includes fuel, lubricants, tire costs, repair parts, services hired, costs for farm labor used for servicing machines, taxes, insurance, interest and depreciation charges based on current values, and housing costs. Prior to 1942 only 40 percent of the total cost of automobile expense was charged to the farm business and 50 percent since 1941

3/ Value in terms of 1935-39 average prices.

4/ Preliminary estimates.

Table 3.- Cost per unit for farm power and machinery and related data 1935-39 average and 1940-45 inclusive

Index numbers (1935-39 average = 100)

Calendar year or period	Cost per head of keeping horses and mules	Use cost per Tractor	Use cost per Automobile and motor truck	Per unit of all other farm machinery	Prices received by farmers
1935-39	100	100	100	100	100
1940	89	102	104	97	93
1941	92	107	113	106	116
1942	115	111	119	114	149
1943	138	116	131	120	179
1944	174	126	148	132	182
1945	182	129	157	133	189

Total tractor operating costs in 1945 were more than 100 percent above the prewar average but there were also 67 percent more tractors in 1945. The operating cost per tractor in 1945 was only about 30 percent above the prewar average. Costs of using farm automobiles and motortrucks in 1945 were 66 percent above the prewar average. Owing to wartime restrictions, farmers purchased few new automobiles and motortrucks from 1942 to 1945. Although 1945 numbers were 6 percent above the average of the prewar period, they were less than for any year from 1940-43 inclusive. Cost per unit of operating motortrucks and automobiles in 1945 was about 57 percent above the prewar average. Costs of operating farm tractors, trucks, and automobiles in 1946 are expected to be about 15 percent higher than in 1945. A further increase of about 15 percent over 1946 is expected in 1947.

The costs of using all farm machinery and equipment other than tractors, trucks, and automobiles in 1945 was more than double the prewar average but there were 60 percent more machines. Per-unit costs of using this other machinery in 1945 were only 33 percent above the prewar average. Costs of operating machinery in 1946 will be about 15 percent higher than a year ago.

Although machinery costs have increased since 1940, the increases per unit have been less than the increases in wage rates and costs of keeping horses and mules. This additional advantage of machines and mechanical power over hand work and animal power has made the substitution of new machine methods for the older established man-horse methods more profitable than in the prewar period. Greater production, increased production efficiencies, and higher prices have provided larger farm incomes and the means for expanding the purchase and use of machines.

Feeds

Following the lapse of price controls on July 1, 1946 costs of many feeds at important markets advanced sharply. Even though many livestock prices also increased, the livestock feed-grain price ratios since July 1 have been generally more unfavorable for feeding than they were before July 1. However, a record feed-grain crop is in prospect this fall and hay, forage and pasture supplies are generally adequate. Feed-grain prices are below July peaks and should be still lower as more new corn becomes available. With livestock prices at or near September levels, most livestock feed-grain price ratios are likely to be moderately favorable for increased feeding in 1946-47. (See table 4 and figures 1 and 2.)

Feed prices during the war years have been much above the long-time average. The price of corn received by farmers has averaged $1.07 from 1942 to 1945 compared with 69 cents in the 20 years from 1922 to 1941. Comparable prices for oats are 64 cents and 36 cents. Hay also was much above average. The index of all feed grains and hay for the same periods was 154 and 103 based on 1935-39 = 100. Thus the prices received by farmers for feeds during the war was about 50 percent above average and much higher than in any year since 1920. From the longer viewpoint, prices of feed grains will probably move downward from wartime levels, reflecting a more normal demand and also the long-time effect of technological improvements in feed-grain production.

To farmers who sell feed grains, hay and other forage, feed is a direct source of income, but other farmers buy feeds, and home-raised feed is also a cost item in livestock production. In fact, feed is the most important cost item in the production of all kinds of livestock and livestock products. Valued mostly at market prices, it normally accounts for about one-half the total cost of producing milk, eggs or a beef calf and three-fourths or more of the cost of a hog. Grain and other concentrates make up nearly all the feed costs for poultry and hogs, but less than 40 percent of the total feed cost of the average dairy cow and still less of cattle and sheep. When livestock prices are high relative to grain prices, more grain is fed, production of milk or eggs is increased, and hogs are fattened to heavier weights. In contrast, when feed prices are relatively higher, less grain is fed and livestock production is reduced.

With a record corn crop and a near-record crop of oats, feed grain production will set a new high in 1946. However, supplies will not be increased proportionately because the carryover of feed grains at the end of the 1945-46 season was small. In addition, wheat will not be freely available for livestock feed, because exports and food demands place a heavy burden on the record wheat crop and the carryover was very low.

Table 4.- Relation of supply of feed to number of livestock and to prices of feed and livestock, 1927-46

Year	Index numbers (1935-39 = 100) Livestock and livestock product prices 1/	Feed grains and hay prices 1/	Supply of feed concentrates available for feed 2/	Animal units of grain consuming livestock fed in year 3/
1927	127	121	105	110
1928	136	130	103	111
1929	138	126	106	110
1930	117	113	103	111
1931	85	78	96	110
1932	63	51	106	113
1933	62	60	119	115
1934	72	100	98	111
1935	99	113	68	95
1936	103	108	97	100
1937	109	132	74	99
1938	97	75	101	99
1939	93	73	111	107
1940	96	86	116	113
1941	120	94	120	112
1942	148	117	128	120
1943	172	155	150	138
1944	166	175	141	137
1945	174	170	135	124
1946			136	120
Jan.	174	172		
Feb.	173	175		
Mar.	174	180		
Apr.	175	180		
May	177	198		
June	182	205		
July	211	257		
Aug.	225	237		
1947			137	

1/ Calendar year.
2/ Supply for year beginning preceding October.
3/ Animal units fed in year beginning preceding October.

RELATION OF CONCENTRATE FEED SUPPLY TO NUMBER OF GRAIN CONSUMING ANIMALS, UNITED STATES

INDEX NUMBERS (1935-39=100)

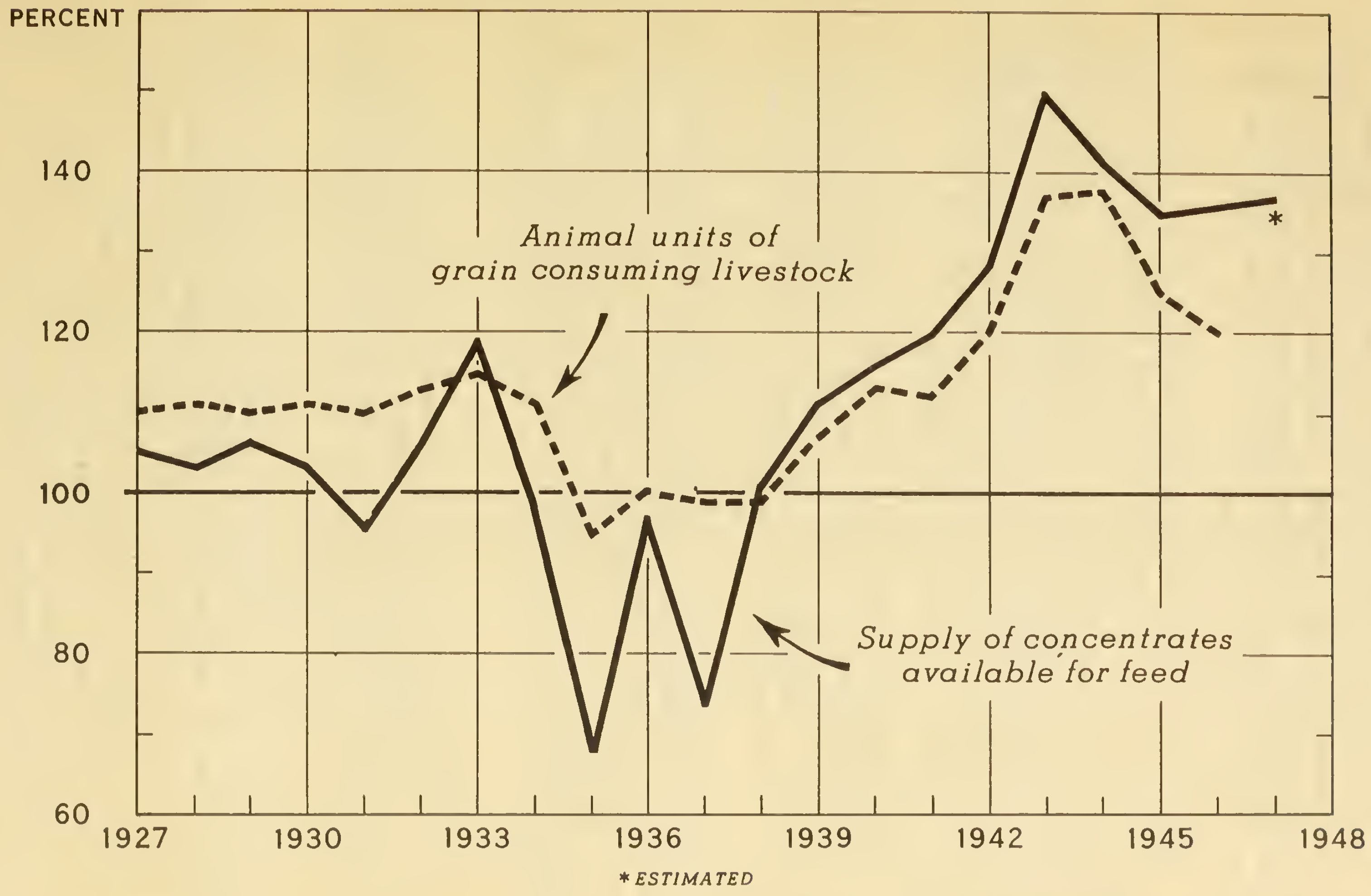

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FIGURE I

In general numbers of grain consuming livestock tend to adjust to the feed supply. The supply of concentrates has been larger in relation to the number of livestock since 1938, but more livestock product per animal has been produced.

Supplies of byproduct feeds probably will be larger in 1946-47 than a year earlier. Net exports of feeds will be large and the demands and requirements of grains for industrial purposes will be larger than usual. The total supply of concentrates for feed, seed, exports, industry, and carryover is expected to be about 162 million tons in 1946-47 compared with 160 million tons for a year earlier. In brief, large as the crops appear to be, they are no more than adequate to meet the heavy demand in prospect.

The number of grain-consuming livestock to be fed from these supplies in 1946-47 will probably be about 3 percent less than in 1945-46. Hog raisers have made the largest part of this reduction from the standpoint of feed consumption, as indicated by their prospects for a 17 percent smaller pig crop this fall compared with a year ago. In addition, January 1 numbers will be down for chickens and horses, and probably milk cows and other cattle. As a result, the supply of feed grains in relation to livestock numbers to be fed will be about 4 percent larger in 1946-47 than in 1945-46.

This 4 percent increase may not reflect the full gain that there will be in feeding values because last year much more feed was fed in relation to the number of livestock because of the generally poor quality of corn. About 126 million tons of feed concentrates will be needed for 1946-47 compared with 136 million tons fed last year.

Generally good pasture and range conditions during the past summer have contributed materially to livestock production, because about one-third of all feed nutrients come from pasture and range. Although hay supplies for 1946-47 feeding are somewhat smaller than a year ago, they are ample in relation to livestock numbers. This year's hay crop is estimated at 96 million tons, 9 million tons smaller than the 1945 crop. The carryover from last year, however, was 16 million tons.

Even though dairymen and poultrymen will need less high protein feeds for their reduced herds and flocks, they probably will pay higher prices for what they get. All byproduct feeds, particularly high protein feeds, will be in smaller supply in relation to feed grains in 1946-47 than in 1945-46.

The cost of dairy and poultry concentrate rations in recent years usually has been 50 cents to $1.00 higher per 100 pounds in deficit feed regions than in surplus feed regions. These differences are likely to continue. The differences are due to lower prices in surplus feed areas and also to the greater use of home-grown grains in relation to higher priced supplements in surplus areas. The cost of a poultry ration in the New England States in July 1946 was $4.61 per 100 pounds compared with $3.56 in the West North Central region. Dairy concentrate ration costs show a similar difference. The difference in the price of laying mash in the two regions was only 33 cents and of bran only 2 cents per 100 pounds.

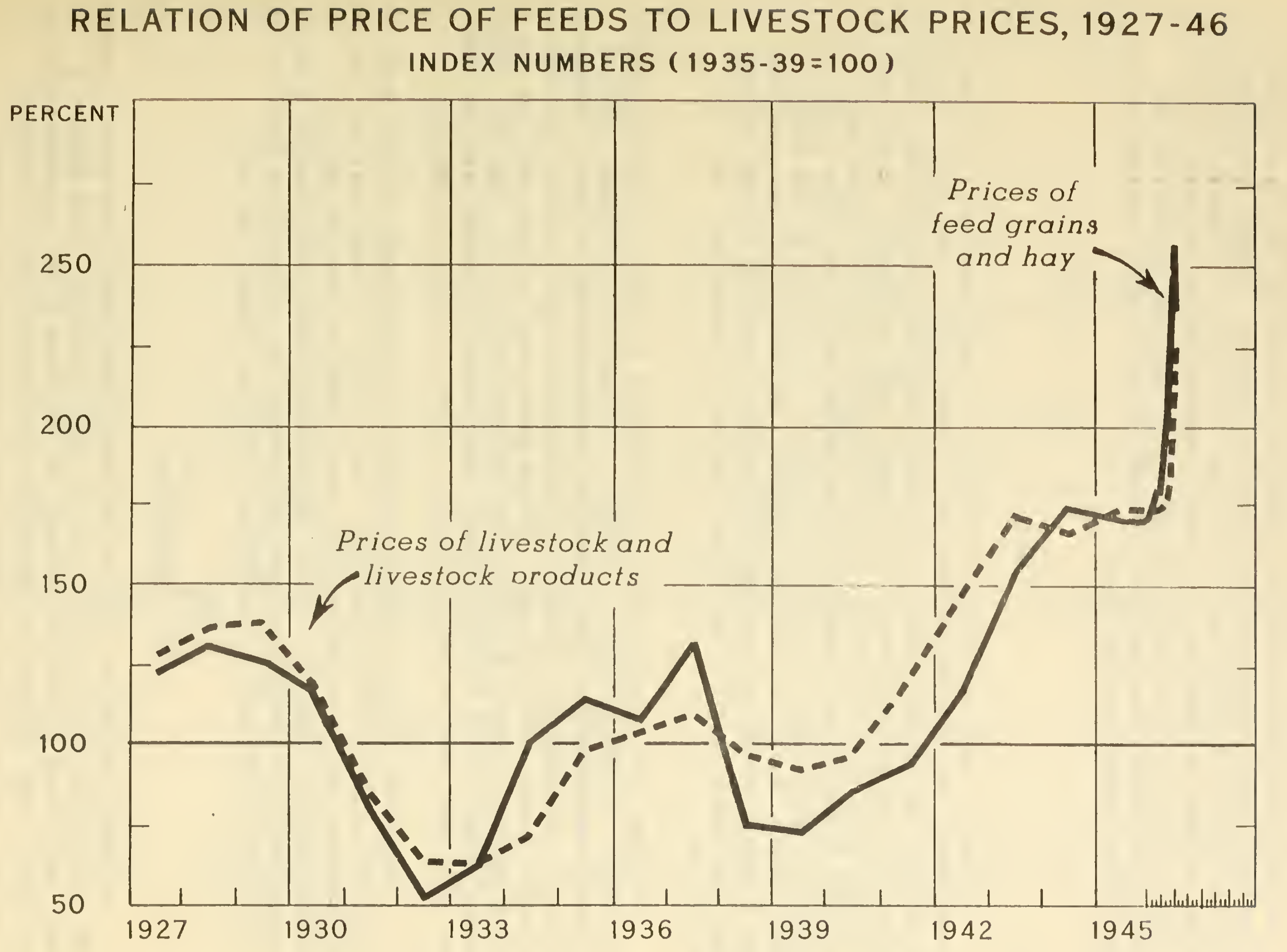

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FIGURE 2

Prices of livestock and livestock products tend to keep in line with feed prices over the long run.

The long-time trend will probably be toward lower cost per unit of feed nutrients for livestock. Improved methods of hay harvesting and storage reduce labor and save feed nutrients. Liming, fertilizing, and other improved practices, and better varieties of plants will have similar effects on pastures. As much progress may be expected in the increased production of feed nutrients from hay and pasture in the next decade as has been made in the past 10 years with corn and oats, thus further reducing feed costs.

Seed

Farmers' seed costs are influenced by seed supplies, by changes in the demand for different kinds and varieties of seeds, both old and new, and by the general level of prices. Supplies are made up of production for the current year, net imports, and carryover. Seed costs in general tend to vary inversely with previous year's production. From 1938 through 1941, production was relatively high, high enough to hold prices well below the 1935-39 average. After 1941, the higher general price levels and wartime demands, particularly from countries where production was interrupted by the War, resulted in much higher prices for seeds despite the higher levels of production. (See figure 3.)

Prices that farmers will pay for seeds in 1947 will be slightly above those of 1945 and 1946. However, prices for individual kinds will vary considerably. The supply of northern-grown alfalfa, Kentucky bluegrass, and some varieties of vegetable seeds will be shorter than most other seeds. We will have to draw more heavily than usual on the current year's production because of smaller stocks. On June 30, 1946, dealers' stocks of 34 kinds of field seeds were 43 percent smaller than those of a year earlier and 16 percent below the 1940-44 average.

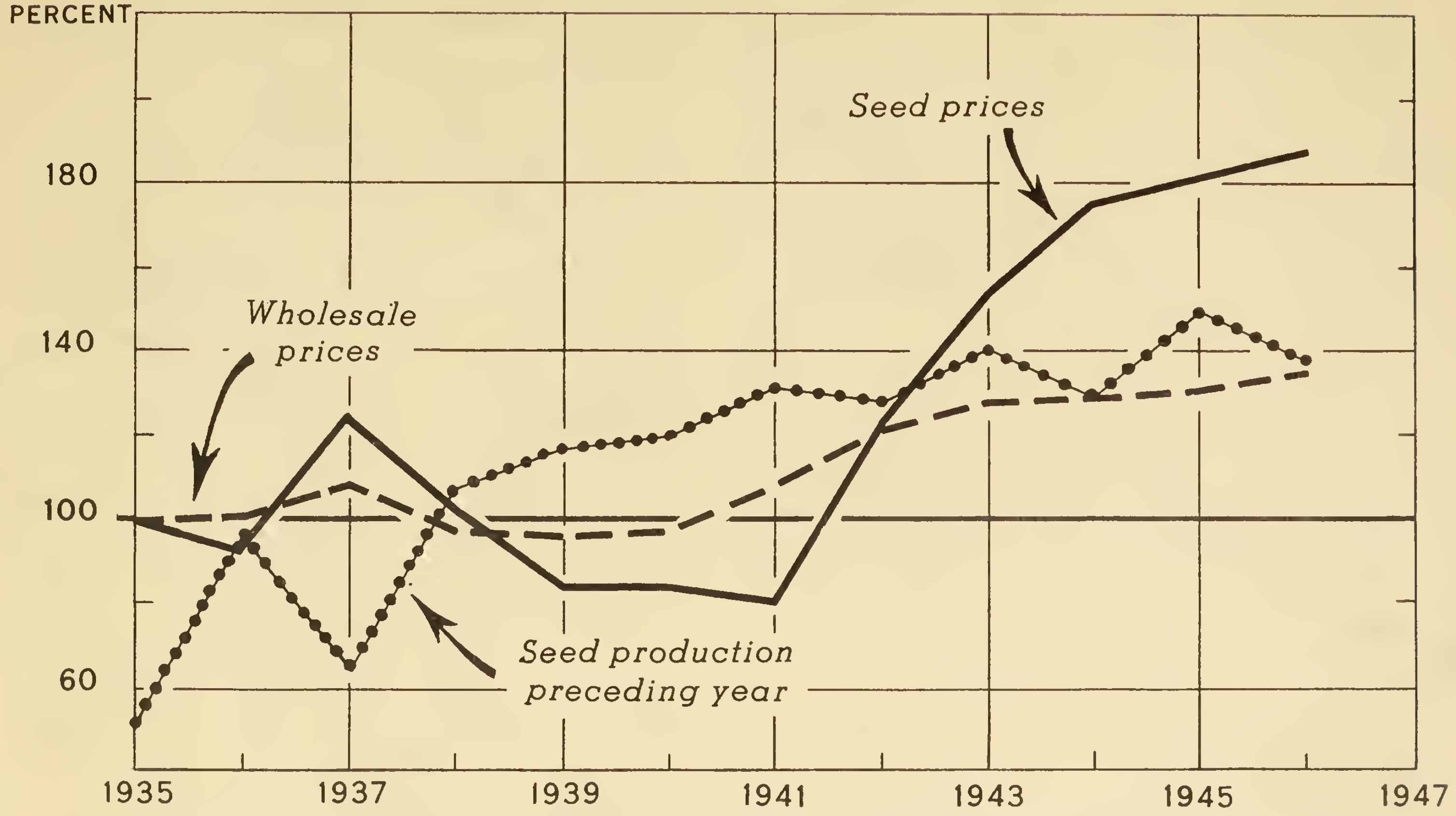
Production of 14 principal legume and grass seeds in 1945 was about 7 percent lower than in 1944. As a result of this smaller production, farmers paid more for seed in early 1946 and dealers had much smaller stocks by June 30. Thus, largely as a result of smaller stocks the expected relatively high level of production of seeds in 1946 is not likely to be sufficient to lower seed costs to farmers in 1947.

Fertilizer

Farmers paid higher prices for fertilizer during the last 3 years of the war period than they did in the years 1939-40. (See figure 4.) Farmers paid these higher prices and, at the same time, increased their use of fertilizer because of favorable farm product price-fertilizer cost ratios, and anticipated higher farm production and incomes.

PRICE PAID BY FARMERS FOR ALL SEEDS, PRODUCTION OF SELECTED GRASS SEEDS* IN THE PRECEDING YEAR, AND WHOLESALE PRICES OF ALL COMMODITIES, UNITED STATES, 1935-46

INDEX NUMBERS (1935-39=100)



* ALFALFA, RED, ALSIKE, SWEET AND CHIMSON CLOVERS, LESPEDEZA, AUSTRIAN WINTER PEAS, ALL VETCH, COMMON RYE GRASS, TIMOTHY, REDTOP, KENTUCKY BLUEGRASS, ORCHARD GRASS AND SUDAN GRASS

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FIGURE 3

Seed prices and production are both at considerably higher levels than in 1935-39, but prices in recent years have been higher in proportion to production than during the prewar period.

RETAIL PRICES OF FERTILIZER, PRICES PER UNIT OF PLANT NUTRIENTS, AND RATIO OF PRICES RECEIVED BY FARMERS TO PRICES PAID PER UNIT OF PLANT NUTRIENTS, UNITED STATES, 1910-45

INDEX NUMBERS (1935-39 = 100)

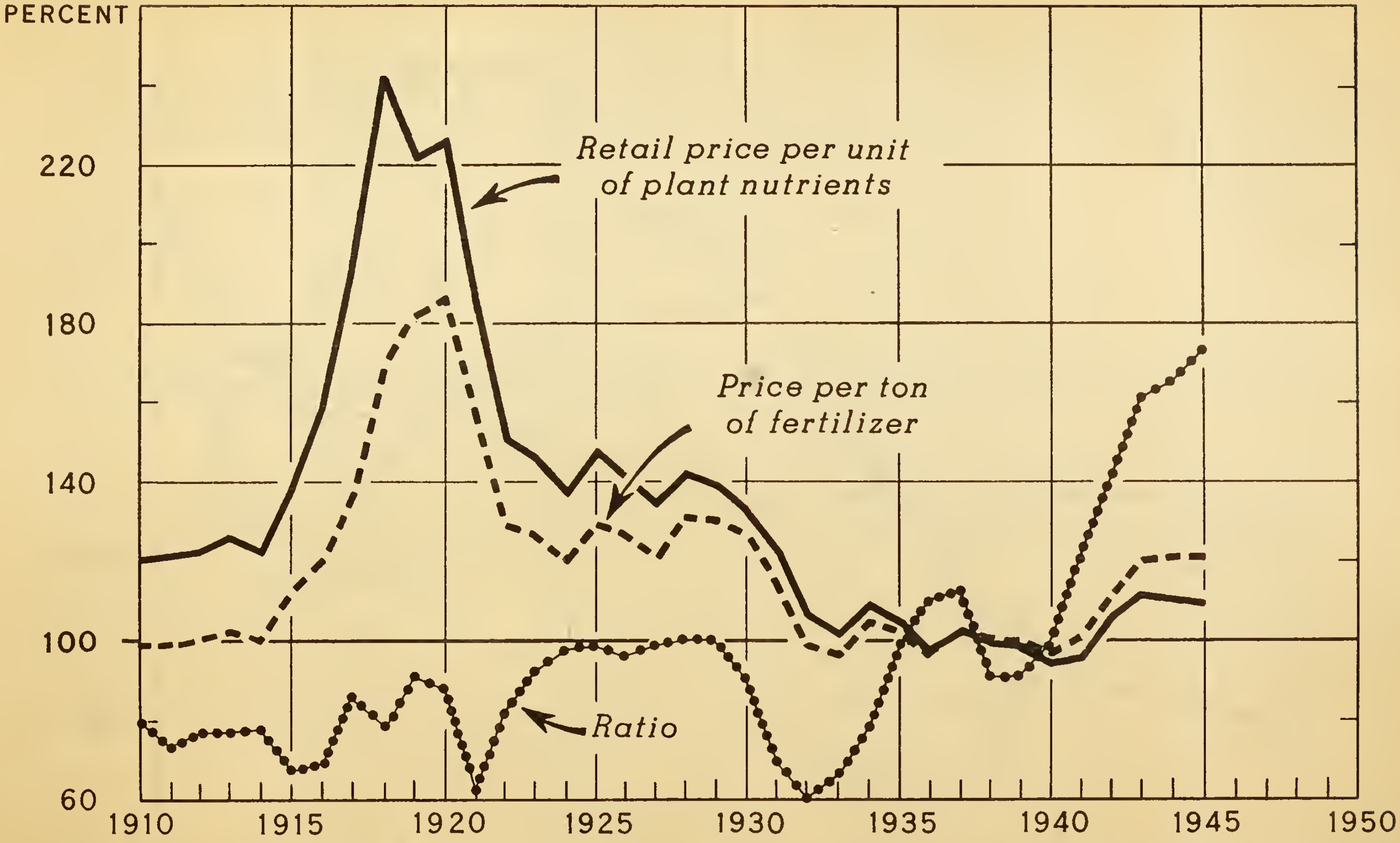

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FIGURE 4

Fertilizer prices have been about 20 percent higher since 1942 than in 1935-39, but about 5 percent below those prevailing during the 5-year period 1925-29, the most recent period of relative stability. The cost situation in terms of plant nutrients is even better; farmers' dollars will now buy relatively more plant nutrients in fertilizers than at any time in history.

Supplies of total plant nutrients for the year ending June 30, 1947 are expected to be slightly larger than for the previous year. The upward trend in fertilizer consumption has been relatively stronger in the areas formerly using little fertilizer, particularly the Corn Belt and Lake States, than in the areas where use of fertilizers has been rather common for some time. The distribution of supplies in 1946-47 will probably reflect a continuation of this trend. While the 1946-47 outlook is favorable to continued heavy use of fertilizer, the longer range situation will depend considerably on the continuance of a more favorable farm product price-fertilizer cost ratio than prevailed prior to 1941.

Since 1941 prices received by farmers for all commodities for the country as a whole have been relatively higher than prices paid by farmers per unit of plant nutrients in fertilizer. This situation will likely prevail in 1947.

Prior to 1941 this relationship was less favorable. In fact, with the exceptions of 1936 and 1937, the ratio of prices received by farmers to prices paid for fertilizer plant nutrients (1935-39 = 100) never exceeded 100 from 1910 to 1941. Use of higher analysis fertilizer in more recent years has been a factor in making the ratio of farm product prices to prices per unit of plant nutrients more favorable. However, the wartime rise in prices of farm products has been a much more important factor. The general price-control program has also been important in making favorable farm product price-fertilizer cost relationships during the war years.

Regional variations in fertilizer costs reflect the influence of differences in analyses of fertilizer used and in distance from points of manufacture. For example, high analysis fertilizers are used in the Mountain States, while the lower grades are generally used in the South. In the Mountain States the higher grades used tend to hold down prices per unit of plant nutrients relative to the United States average while greater distances and higher shipping costs to those States tend to increase costs.

With a continued trend toward increased efficiency in the manufacture and distribution of fertilizer, it appears that the situation will be favorable for still higher levels of fertilizer use in the future. Certainly the situation should be favorable for 1947. If present trends toward wider use of fertilizer to support more stable systems of farming are continued, or accelerated, demand for fertilizer in the future may be less dependent on export crops, primarily cotton and tobacco, than it has been in the past. More stable farming systems and systems that include more feed crops and livestock in areas that have been heavy users of fertilizer should not decrease total fertilizer consumption, but rather should sustain high demands for fertilizer. Future demand for fertilizer will also be influenced by consumption in areas that have previously used relatively small quantities. Wartime consumption of plant nutrients in the North Central, Northeastern and Western States combined was nearly two and one-half times that in the prewar period. The percentage of the United States total consumption occurring in these States likewise rose from less than one-third to more than two-fifths. These States accounted for half of the total increase. Wartime consumption of plant nutrients in the older and heavier using areas rose about 70 percent over prewar levels.

There is still need for considerable capital investment in soil improvements such as additions of phosphate and potash, particularly to soils in the humid sections of the country.

Lumber, Containers, and Farm Supplies

The demand for lumber, containers, and farm supplies continues high relative to production and supplies. Although the production of lumber is increasing and is expected to expand further in 1947, the Veteran's Emergency Housing Program will probably use a large percentage of both lumber and some other building materials. As a result of these relatively high requirements, priority authorizations for use of some construction materials probably will continue into 1947.

The extraordinary demands for lumber have kept rural yards from establishing inventories comparable to prewar. Although agricultural production in 1947 will probably not be seriously hampered because of lack of lumber, much new farm construction may be postponed until supplies improve.

Container shortages may be eased slightly compared with 1946, but continued conservation and salvage should be planned. Wooden containers, though generally more available, may continue somewhat below requirements in 1947. Tin cans, paper, open mesh and cotton bag supplies should be adequate to meet essential needs.

Most merchant trade products (barbed and woven wire fencing, nails, staples, bale ties, metal roofing and siding, and pipe) have been in short supply for the first half of the year because the steel and coal strikes slowed down manufacture and also because of very high demand. Nails and bale ties probably have been in shortest supply. If the steel mills operate without interruption for the next few months, practically all merchant trade products should be produced at a rate that will meet farm requirements for the remainder of this year and into 1947.

Costs of lumber, containers, and farm supplies were higher in the latter part of 1946 than in the first half of the year, and are expected to be somewhat higher in 1947 than at present. The July 15 index of prices paid by farmers for commodities used in production was 159. (See inside cover page.) This is up 9 points in a single month and up 21 points from January 15. One of the sharpest rises was in materials for building farm structures other than houses, such as drop-siding, barn windows, roofing, metal and wooden fence posts, barbed wire and poultry netting.

Insecticides and Fungicides

Farmers' costs of insecticides and fungicides are affected by the general level of prices and costs and by available supplies in relation to demand for these products. Except for nicotine compounds and possibly rotenone, supplies probably will continue to be adequate at existing prices. Increasing retail distribution costs of these materials may tend to offset the effect of increased supplies so that costs to farmers in 1947 may continue near current levels. Variations in costs of individual items are expected. Even during the war, when supplies were curtailed, the farmers' cost index of pesticides rose faster than did wholesale prices.

During the coming year, supplies should be adequate of arsenicals and copper chemicals, pyrethrum, synthetic compounds, such as DDT and thiocyanates, and fluorine compounds, such as cryolite, sodium fluoride, and sodium fluosilicate. The same is true for all insect and soil fumigants (with the possible exception of napthalene and para dichlorobenzene) and for sulphur, dust dilutents, and petroleum insecticide carriers. With the resumption of rotenone imports from the Far East supplies of rotenone should be adequate to meet needs for the next year.

Land Values and Rentals

Farm land values and rentals during the coming year are expected to average higher than for any year of record except for 1920, the peak of the post World War I boom. Outlays for the purchase of farm land are of considerable importance to the prospective buyer and also to the owner. Investment in land and buildings represents about 60 to 85 percent of the total capital (including real estate, machinery, equipment, livestock, and supplies) in most farms. Farms bought at high land prices represent high fixed costs to the farmer. High land rentals represent high fixed costs to the tenant, but land rentals are current rates that can be adjusted more readily to prevailing prices and costs.

Land values have been increasing steadily at an average rate of one percent per month since 1941. During the year ended July 1, 1946, the increase was 13 percent, bringing the United States index (1912-14 = 100) to 147; 73 percent above 1941 and only 14 percent below the 1920 inflationary peak. (See figure 5.) Average values as of July 1 were above 1920 levels in 3 geographic divisions and within one percent of 1920 in 2 other divisions. (See table 5.)

The principal forces that have influenced the farm land market in recent years and are likely to continue during the coming year include: a relatively high level of both farm product prices and income, a favorable current rate of return on land investments, easy credit, and a huge volume of liquid funds available for land purchase.

Table 5.- Farm real estate: Index numbers of estimated average value per acre, 1920 and 1946, with selected comparisons 1/

Geographic divisions	Index numbers 1912-14 = 100			Increase			Ratio
	1920	1946		1915 to 1920	1941 to 1946	1945 to 1946	July, 1946 to 1920
		March	July				
				Percent	Percent	Percent	Percent
United States	170	142	147	65	67	13	86
New England	140	140	142	41	31	8	101
Middle Atlantic	136	128	134	36	41	8	99
East North Central	161	134	138	55	68	13	86
West North Central	184	106	110	75	63	10	60
South Atlantic	198	189	197	102	72	14	99
East South Central	199	212	218	101	84	18	110
West South Central	177	154	158	77	56	11	89
Mountain	151	134	139	54	72	12	92
Pacific	156	194	204	46	78	13	131

1/ Farm land with improvements as of March 1, except where otherwise indicated.

If farm product prices during the next year continue at or near present levels, land values and rentals will likely continue to rise in spite of the uncertainties as to longer-run price and income levels. Expectations of lower farm product prices and income levels along with a recollection of the collapse in land values and lower land rentals that followed the World War I boom have had a tempering effect on land prices. As it is likely that these value-curbing influences will only partially offset strong inflationary forces, the peak in farm land prices probably has not been reached.

For the country as a whole, an increase of 10 percent or more in land values with a somewhat smaller increase in rentals may be expected during the year ahead. This would be only a continuation of the upward trend of the last 5 years and it would be far short of the 21 percent rise in values that occurred during 1919-20. Any widespread speculative boom would accelerate the increase. Such a boom seems improbable in view of the substantial number of farmers expecting lower land values in the years ahead and a general recollection of the hardships and privations that followed the World War I land boom.

Although a further rise in land prices and rentals is in prospect, it appears that current land prices and rentals in many areas are already above levels likely to be maintained. Hence, any further increases will make considerably more difficult the adjustments necessary to more usual operation.

FARM REAL ESTATE: NET LAND RETURNS AND VALUE PER ACRE, AND RATIO OF RETURNS TO VALUE, UNITED STATES, 1912-46

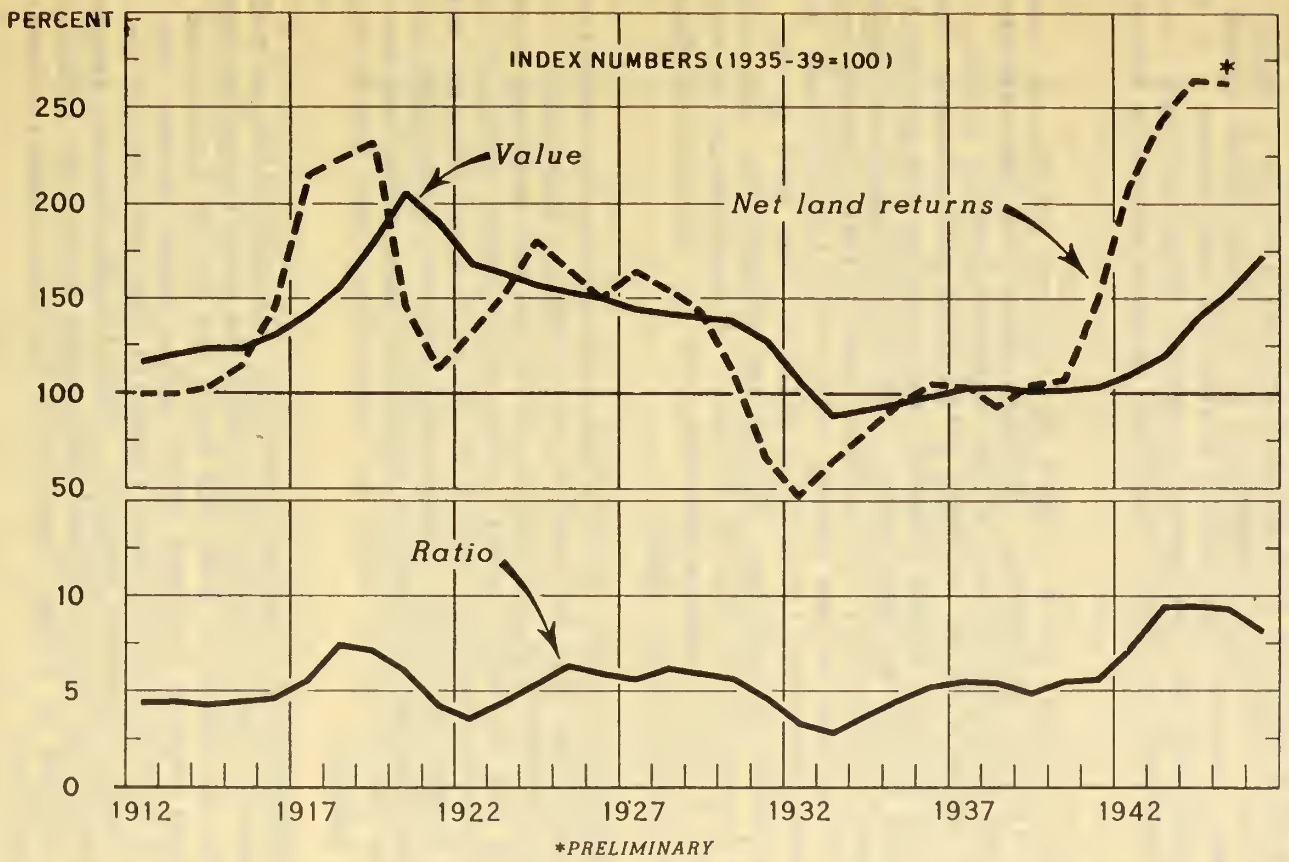

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FIGURE 5

Net land returns per acre during the past 3 years have been significantly higher than the World War I peak reached in 1919 although the levels of return before both World Wars were approximately the same. Starting from lower levels, average values during the current war period have now increased about as much as during the World War I period. The ratio of returns to value decreased during the last 2 years as a result of values rising faster than net returns although the level is still higher than for any year since before this war period.

Interest, Taxes, and Insurance

Interest - The continued decline in total farm-mortgage-interest charges which has been under way since 1922 appears to be at an end. Interest costs probably will level out or increase slightly next year. While the farm-mortgage debt declined 3.6 percent during 1945, farmers' reductions of this debt were slowing up as indicated by declines of 6.5 percent in 1944 and 8 percent in 1943. Furthermore, in 1945, 20 States showed an increase in debt, compared with only 8 States the year before. In many instances, farmers may use less money to pay off debts and more to purchase new equipment and repair buildings as more materials become available.

Evidently interest rates charged by different lenders on farm-mortgage debt, are not increasing. However, since 1944 the average farm mortgage interest rate has shown a slight increase because of the elimination of the subsidized interest rate of the major Federal lending agencies and also because higher interest rate lenders are getting a larger proportion of the mortgage debt. The farm-mortgage debt held by commercial banks, individuals, and certain other private lenders increased about 95 million dollars during 1945, while the debt held by the Federal land banks decreased 130 million dollars; that held by the Federal Farm Mortgage Corporation, 100 million dollars; and that held by life insurance companies, 50 million dollars. A continuation of this shift could mean a higher average interest rate for the total mortgage debt in the years immediately ahead.

A more significant rise in interest costs during the coming year may occur in connection with non-real estate credit. Increased expenditures for automobiles, machinery, tractors, and building materials at higher prices and on higher credit rates will further increase debt charges. The various creditors will make loans at about the same rates, but to finance larger purchases farmers will increase their debts with such creditors as dealers and finance companies whose rates are considerably higher than those of banks and production credit associations, the more usual lenders.

Notwithstanding the expected increases, the cost rates of both mortgage and non-real estate credit will still be relatively low compared to prewar. Large surpluses of loanable funds and active competition among lenders have reduced interest rates during recent years. Also, most farmers are in a relatively good financial position and can get loans from the regular low-rate lenders. Even though interest charges will continue small this year compared with other production costs, in the event of a decline in income these costs which are largely fixed might prove burdensome.

Taxes - Property-tax payments made by farmers in 1947 probably will be up somewhat from those for 1946. Property taxes are responding to upward pressures after fluctuating very narrowly for 10 years. Revenue needs of local governments have increased substantially during the past few years, and property taxes are their major source of operating funds. Higher salaries and wage rates, increased services and facilities, and increased prices of materials have placed greater demands and higher costs on local governments. Despite the availability of revenue from State aids and shared taxes, a significant part of these increased costs must be met by property levies. The 1945 levies on farm real estate, payable largely late in 1945 and early in 1946, were more than 10 percent higher than those of 1944. A further rise is expected in 1946.

Insurance - The increase in valuation of farm buildings and equipment, and the wide gaps between insured value and replacement costs that now exist on many farms, will undoubtedly cause many farmers to obtain more insurance, particularly where policies are coming up for renewal. Insurance on farm property is generally for a 5-year or a 3-year period, with premiums, payable in advance and based on 75 percent of value at time of the contract. This means that insurance costs (premium outlays) will increase in total amount, perhaps by not more than 5 percent. Costs per $100 of insurance may decrease slightly, largely as a result of lower unit overhead costs and reduced casualties through improved structures and protection facilities.

Changes in Farm Production Costs

Production costs on all kinds of farms the country over have moved steadily upward during the past several years. But the effects of sharply higher prices for feed, labor, machinery and other production items on farm production costs differ materially among farms and farming areas, depending upon the production methods and the crops and livestock grown. Some of the important aspects of the cost situation from a farm unit basis are illustrated by comparing the trends since 1930 in costs per unit of production on 14 important types of farms. The unit costs relate to the entire farm production of the great body of family-operated farms of the respective type, and not to individual commodities produced on these farms.

The index of operating expense (figure 6) measures the combined effect of changes in the quantities and prices of cash cost goods used, and in the volume of production obtained by their use.

Characteristic differences in the composition of production expenses on farms of various types and in the expansion in production per farm largely account for the varying rates of increases in costs per unit of product during the War period. Feed prices and wage rates rose much faster than did prices for other cost items. Cash costs have consequently risen fastest on those farms using considerable purchased feed and hired labor.

Mechanization has also played an important role in influencing the pattern of cash cost changes. Farmers who had or could mechanize most of their operations were able to hold down expenses per unit of product by expanding production thereby making better use of their labor, power, and equipment. On farms where increased production required an almost equal increase in labor or feed, out-of-pocket costs per unit pushed up relatively faster than on other farms.

Present and future levels of cash costs of production will have an important bearing on the future earnings of farm families. These operating expenses (cash costs) together with rent paid take up less than half the total value of production on most family-operated farms. The rest of the value of production goes to the operator and his family as return for their labor and for their investment in the farm business.

Prices of the things farmers buy historically are quite inflexible. When foreign relief tapers off, farm product prices may resume a less favorable relationship to those for other goods and services. Farmers' earnings will reflect any unfavorable price change unless production costs can be reduced substantially through increased efficiency. Farmer's earnings can be protected from unfavorable price developments to the extent that cost reduction can offset price declines.

Other aspects of the cost situation on these 14 types of farms are illustrated in figure 7. The series of unit costs based on 1930-44 average prices reflect changes in the aggregate quantity of labor, land and other resources required per unit of total production. Downward trends indicate improvements in production efficiency. They indicate that less labor, land and equipment is now used to produce the same volume of farm products as in former years. But prices of production goods have changed markedly over the 16-year period, so that the series based on current prices, including a return to the operator and family for their labor and for their investment in the farm equal to prevailing hired labor wage rates, and net rentals and interest rates respectively, is a better reflection of the changes in production costs per unit in terms of current dollars. This series indicates the change in farm product prices which would return to the operator and his family for their labor and investment as much as they could get by working at prevailing wages and renting out their land, livestock and machinery at current local market rates.

Very substantial gains have been made in production efficiency during the last decade by operators of most types of farms. A number of factors have contributed to a general reduction in the amount of labor, land and other resources required per unit of farm output. Chief among these is the 30 to 50 percent increase in the average production per farm of the types illustrated in figure 7. By expanding production, operators on most family-operated farms can reduce their costs per unit through more efficient use of labor, machinery and land. A considerable

OPERATING EXPENSE PER UNIT OF PRODUCTION

TYPICAL FAMILY-OPERATED FARMS, BY TYPE, 1930-45

INDEX NUMBERS (1930-44=100)

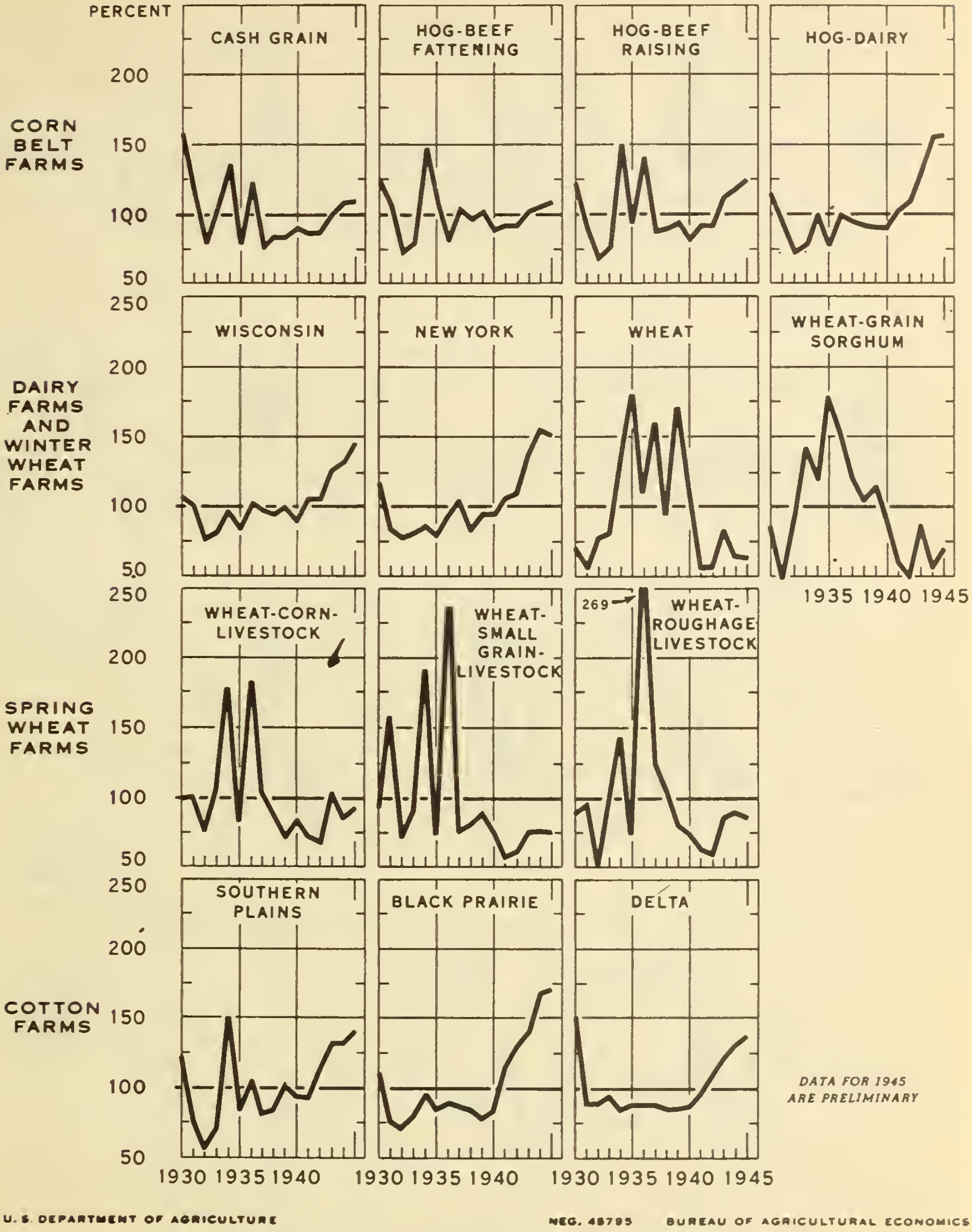

FIGURE 6

This index measures the combined effect of changes in prices and quantities of cash cost goods used, and in the volume of production obtained by their use. Annual variations in operating expense per unit of production are traceable largely to fluctuations in crop yields. Differences in the rate of improvement in production efficiency and in the composition of production expenses account for the long-run differences between types of farms.

TOTAL COST PER UNIT OF PRODUCTION

ALL LABOR, LAND, AND OTHER COST GOODS AT CURRENT AND 1930-44
AVERAGE VALUES, FAMILY-OPERATED FARMS, BY TYPE, 1930-45

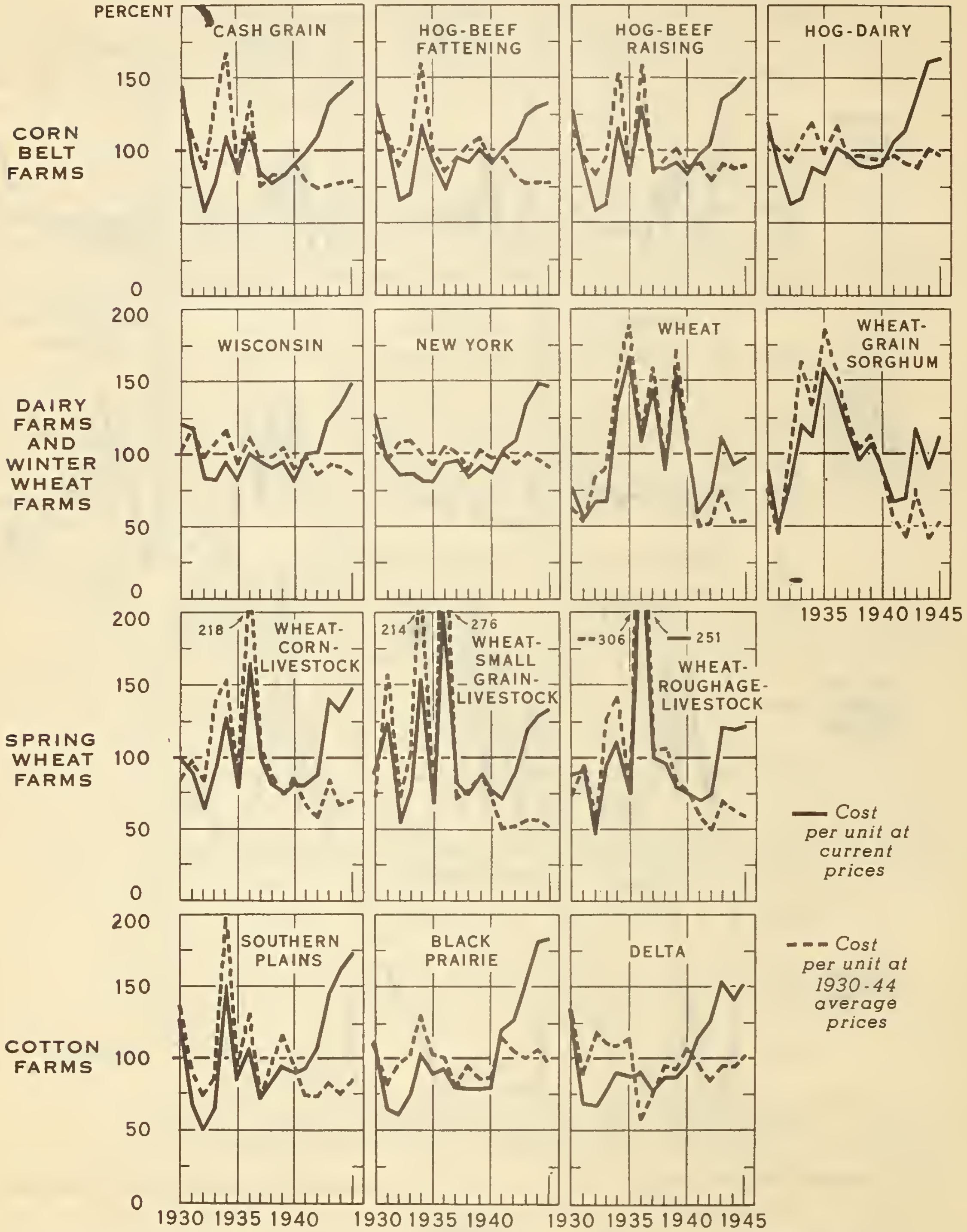

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FIGURE 7

By adopting more efficient production methods and steadily expanding production, farmers generally have reduced substantially the quantity of cost goods required per unit of product marketed. Costs, in terms of the current value of these inputs, shot up 50 percent or more during the war - a substantial part of such production costs represent returns to the operator and family for their labor, and for their investment in land and other farm capital.

part of the increase since 1930 in production per farm and per worker was obtained by increasing the scale of operation. Although many of our family-operated farms are yet too small to permit the most efficient use of machinery and family labor, substantial progress has been made in obtaining greater efficiency in production on many farms.

Mechanization progressed rapidly in most sections, especially after 1935, and contributed significantly to the marked gains in labor efficiency. The very substantial improvement in crop yields during the past decade not only aided in expanding production but also materially enhanced the efficient use of land, labor, and machinery. Differences in the rate of mechanization and improvement in crop yields account for much of the differences between types of farms in the reduction of real unit costs. Crop yields were increased by adopting improved crop varieties, increased use of fertilizer and lime, soil conservation activities and better production practices generally.

Those producers who were able to reduce substantially the quantity of cost goods going into each unit of product have best been able to hold their current production costs in check. They will also be in a better position to withstand any future price declines than those making fewer cost-reducing adjustments. In particularly unfavorable economic position are those farmers who produce crops with hand-and-horse methods in direct competition with others using tractors and power equipment.

In considering the immediate and more distant future, we must not overlook the gains in production efficiency and in farmers' earnings resulting from sharp increases in crop yields and production per farm especially during the past few years. A bad crop year with resulting low yields would send unit costs soaring far above their present levels; witness the experience of the middle 1930's. In fact, any substantial reduction in output per farm from whatever cause would tend to wipe out recent gains in lowering real costs (costs in terms of quantities of goods and services used per unit of production) and cut sharply into farm family earnings. Individual farmers cannot reduce output without increasing their real costs per unit of production. A very large part of total farm production costs are "fixed;" in the sense that the labor and investment furnished by the operator and his family make up more than half the total costs on most types of family-operated farms. When production is reduced, labor, machinery and usually land are less fully utilized. A smaller volume of product has to bear the same total overhead costs, and the cost per bushel or per pound is necessarily higher. The net return per unit is thus smaller and, with the smaller volume of output, earnings or return to the operator and his family are usually curtailed. The effect is even greater than the measures shown in figure 7 would indicate, for in this instance only the labor and other items actually used in the production of a particular year are included in the calculated unit costs. Underemployment of family labor does not appear as a cost, yet it certainly results in reduced family income.

* * * *

In general, we can expect farmers' cost-price relationships in 1947 to depart little from those obtained in 1946. Supplies of many production items, inadequate during the last few years, will be more plentiful in 1947. Manufacturers are increasing their efforts on a variety of machines and equipment to meet specific conditions. The psychological reaction of farmers to high costs (although not necessarily high in relation to prices) will be to give more emphasis to increased efficiencies in production and production methods.

The future holds great promise of advances in the efficiency of farm production far surpassing those of the past decade. Farmers who are able to take advantage of improved practices will profit not only from lower unit costs but from the larger output per farm commonly associated with such improvements. Unit production costs, in terms of quantities of cost goods used, will surely continue to decline except as interrupted by drought, depression or other adverse developments.